



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|-------------------------------|
| 10/718,671 | 11/24/2003 | Te-Min Yang | 031013.SU | 1636 |
| 7590 | 06/27/2005 | | | |
| Mr. Phillip LIU 6980, Whiteoak Dr. Richmond, BC V7E 4Z9 CANADA | | | | EXAMINER CHIESA, RICHARD L |
| | | | | ART UNIT 1724 PAPER NUMBER |

DATE MAILED: 06/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

mu

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/718,671 | YANG ET AL. |
| | Examiner | Art Unit |
| | Richard L. Chiesa | 1724 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-6 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 24 November 2003 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. The drawings filed on November 24, 2003 are accepted by the examiner.

Specification

2. The abstract of the disclosure is objected to because the phrase “are entered the tank and mixed” bridging lines 7 and 8 should apparently be changed to --enter into the tank and mix--. Correction is required. See MPEP § 608.01(b).
3. The disclosure is objected to because it is replete with grammatical and/or typographical errors such as: “for keeping” (page 1, line 11) should read --to keep--; “are entered the tank and mixed” (page 2, bridging lines 2 and 3) should read --enter into the tank and mix--; “0,9” (page 4, line 8) should read --0.9--. Appropriate correction is required.

Claim Objections

4. Claim 6 is objected to because of the following informalities: (A) The word “form” on the third line should apparently be changed to --from--. (B) The word --with-- should apparently be inserted between “mixed” and “the” on the fifth line. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicants are advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. The following is a quotation of 35 USC 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 USC 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicants are advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 USC 103(c) and potential 35 USC 102(f) or (g) prior art under 35 USC 103(a).

9. Claims 1 and 6 are rejected as unpatentable under 35 USC 103(a) over Tine in view of Pulidori. Tine (note Figures 1-3) discloses an air-liquid mixing apparatus and process with a tank 10, valve assembly 48, 51-54, mixing device 26, and control unit 65 (note col. 2, line 21 to col. 4, line 6) substantially as claimed. It would appear that Tine may not explicitly disclose the use of a compressor or fuel. However, Pulidori (note Figure 1) teaches the well-known use of a compressor and fuel as the liquid to be mixed in an air-liquid mixing apparatus and process for the purpose of ensuring maximum combustion

with minimum waste (note page 1, lines 20-30). Consequently, it would have been readily obvious to one of ordinary skill in the art to employ a compressor and fuel in the Tine air-liquid mixing apparatus and process in order to facilitate optimum combustion with minimal waste as taught by Pulidori.

10. Claim 2 is rejected as unpatentable under 35 USC 103(a) over the prior art as applied to claim 1 in paragraph 9 above, and further in view of Bagwell. The prior art, as described above in paragraph 9, discloses a fuel-air mixer substantially as claimed with the apparent exception of a heater. In any case, Bagwell teaches the use of a heater (note ref. num. 100, Figures 2, 3, 8, 9) in a liquid-air mixer for the purpose of reducing large liquid particles (note Abstract). Therefore, it would have been obvious to one of ordinary skill in the art to employ a heater in the Tine and Pulidori fuel-air mixer in order to facilitate the removal of large liquid particles as taught by Bagwell.

11. Claims 3-5 are rejected as unpatentable under 35 USC 103(a) over the prior art as respectively applied to claims 2 and 1 in paragraphs 9 and 10, and further in view of Olsson et al. The prior art, as described above in either one of paragraphs 9 or 10, discloses a fuel-air mixer substantially as claimed with the possible exception of a temperature and pressure control unit and control panel. In any case, Olsson et al (note Figures 1, 2,) teach the well-known use of a temperature and pressure control unit 44, 48, 52, 56, and control panel 28 in a liquid-air mixer for the purpose of ensuring precise operating conditions (note Abstract). It would have been obvious to one of ordinary skill in the art to employ a temperature and pressure control unit with a control panel in any

one of the prior art fuel-air mixers described previously above in order to facilitate precise operational control as taught by Olsson et al.

Conclusion

12. The prior art made of record but not applied above is considered pertinent to applicants' disclosure. These references have been cited as art of interest to show other liquid-gas mixers.
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard L. Chiesa whose telephone number is (571) 272-1154.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane S. Smith, can be reached at (571) 272-1166.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center 1700 receptionist whose telephone number is (571) 272-0987.

Facsimile correspondence must be transmitted through (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Richard L. Chiesa
June 22, 2005

Richard L. Chiesa
RICHARD L. CHIESA
PRIMARY EXAMINER
ART UNIT 1724

June 22, 2005